GOVERNMENT OF INDIA
URBAN DEVELOPMENT AND POVERTY ALLEVATION
LOK SABHA

UNSTARRED QUESTION NO:1374
ANSWERED ON:31.07.2001
NATIONAL WORKSHOP ON ADVANCES
GADDE RAMAMOHAN;HARIBHAU MAHALE;M.V.V.S MURTHI;SHIVAJI MANE

Will the Minister of URBAN DEVELOPMENT AND POVERTY ALLEVATION be pleased to state:

(a) whether a National Workshop on Advances in concrete and construction technology for safe and durable structures was held recently in the capital;

(b) if so, the details of participants;

(c) the details of discussions held and suggestions/recommendations made by the participants in the Conference;

(d) whether the Chairman, HUDCO has stated therein that nearly 60 percent of houses in Delhi were incapable of withstanding an earthquake;

(e) if so, the response of the Government thereto; and

(f) the action taken by the Government on the suggestions made by the participants?

Answer

MINISTER OF STATE FOR URBAN DEVELOPMENT & POVERTY ALLEVIATION (SHRI BANDARU DATTATREYA)

(a): Yes, Sir.

(b): A detailed list of delegates is enclosed as Annexure-I.

(c): The Workshop focussed broadly on design practices in the planning of buildings, construction practices, concrete making materials and post-construction management for safe, durable and earthquake-resistant structures. The Workshop also recommended strengthening of the quality of concrete construction, particularly in the construction of residential houses.

(d): No, Sir. CMD, HUDCO, however, stated that more than 50% of the houses in Delhi are privately built by people themselves and 38% of the total housing are less than 38 sq.mts. This implied that 38-50% of housing, which would not have been designed by proper structural analysis fulfilling the seismic requirements are liable to earthquake damage.

(e): In respect of Delhi, a notification has since been issued by the Government, making modifications in the existing Building Bye-laws by incorporating mandatory certification by the Architect and the Structural Engineer and adding suitable clause to the effect that the structural design of foundation, timber, plain concrete, reinforced concrete, pre-stressed concrete and structural steel shall be carried out in accordance with the National Building Code and standards prescribed by Bureau of Indian Standards. A copy of this notification is at Annexure-II.

(f): Housing being a State subject, the State Governments have been advised to modify their existing building bye-laws by incorporating earthquake safety norms for safer construction of houses. The Government have been pursuing the mater vigorously with the State Governments.

ANNEXURES REFERRED TO IN REPLY TO PARTS (b) AND (e) OF LOK SABHA USQ NO.1374 FOR 31.7.2001.

ANNEXURE-I

NATIONAL WORKSHOP ON ADVANCES IN CONCRETE AND CONSTRUCTION TECHNOLOGIES FOR SAFE AND DURAI STRUCTURES

26-27 April, 2001, New Delhi

1. Grasim Industries Ltd., 311, World Trade Centre, Barakhamba` Lane, New Delhi.

2. Mr. A.K. Behra, Dy. Manager-E&P, Hindustan Petroleum Corporation Ltd.

3. Mr. A.K. Jain, Vice President, Grasim Industries Ltd.

4. Mr. A.K.Sharma, Superintending Engineer(Repairs & Rehab)
Central Design Organisation, CPWD.

5. Mr. A.K. Sharma, Irrigation Management Training Instt.

6. Mr. A.K. Sikri, National Council for Cement and Building Materials.

7. Dr. A.N. Vyasa Rao, National Council for Cement and Building Materials.

8. Mr. A.S. Karandikar, Sr. General Manager DCM Limited.

9. Mr. A. Srinivas, National Council for Cement and Building Materials.

10. Mr. Abhay K.Jain, Dy.General Manager,Intercontinental Consult & Tech.Pvt.Ltd.

11. Mr. Ajay Guha, Programme Implementation Officer, The Asian Devlp. Bank(Manila)

12. Mr. Akhil Kumar Gupta, Punj Lloyd Ltd.

13. Mr. Alok Bhargava, Assistant Engineer (Civil), Maihar Cement.

14. Mr. Amit Trivedi, National Council for Cement and Building Materials.

15. Mr. Anil Chauhan, Tata Iron & Steel Company Ltd., Marketing & Sales Division.

16. Mr. Anil Kaul, Joint President, Gujarat Ambuja Cement Ltd.

17. Dr. Anil Kumar, General Manager, National Council for Cement and Bld. Materials

18. Mr. Arun Sood, National Council for Cement and Building Materials.

19. Mr. R. Arunachalam, Dy. Manager(Civil), The India Cements Ltd.

20. Mr. Ashraf Ali, University Polytechnic Aligarh, Muslim University

21. Capt. August Von Born Millard, India Country Director,
Embassy of United States of America.

22. Mr. Azhar Jameel, University Politechnic Aligarh Muslim University.

23. Mr. B.D. Jethra, Advisor (I&M), Planning Commission.

24. Dr. B.K. Mittal, Member, Central Water Commission.

25. Mr. B.K. Pandey, National Council for Cement and Building Materials.

26. Mr. B.S. Biradar, Manager, The Associated Cement Companies Ltd

27. Mr. B.S. Nandwani, General Manager, National Council for Cement and Building Materials.

28. Mr. B. Sridhar, AEE, Andhra Pradesh Power Generation Corp Ltd

29. Mr. Bhavesh Trivedi, Technical Executive L&T Ltd.

30. Mr. C. Franklin Foster, Deputy Commercial Counselor, U.S. Department of Commerce Embassy of the USA American Centre.

31. Mr. C.M. Govindani, Manager(Civil), Birla Cement Works.

32. Mr. C.P. Singh, National Council for Cement and Building Materials.

33. Mr. C.R.V. Subramaniam, Executive Vice President, Larsen & Toubro Ltd.

34. Dr. C. Rajkumar, Advisor, National Council for Cement and Building Materials.

35. Ms. Chetana Jain, Dhurmataru Consultants, Hyderabad.

36. Mr. D.B.N. Rao, Director General, National Council for Cement & Bld. Materials

37. Mr. D.K. Biswas, Chairman, Central Pollution Control Board.

38. Mr. D.K. Mahapatra, EE(C), Director General Border Roads, (D&S Cell).

39. Dr. D.K. Paul, Head, Deptt. of Earthquake Engg. University of Roorkee.

40. Lt. Col. D.N. Sharma, Cement Manufacturers Association.

41. Mr. Debashish Bhattacharjee, Engineering Advisor, DFID India

42. Mr. Deepak Dikshit, Joint Director, National Council for Cement & Building Materials.

43. Mr. Fauzdar Singh, National Council for Cement and Building Materials.

44. Dr. G.S.R. Ravishankar, R&D Manager, Fosroc Chemicals (I), Ltd., Bangalore.

45. Mr. G.V. Ramprasad, AEE, Andhra Pradesh Power Generation Corporation Ltd.

46. Pt. Gautam Kaul, A.J. IPS (Retd), New Delhi-110003

47. Dr. George Samuel, General Manager, National Council for Cement & Building Materrials.

48. Mr. George Waterhouse, Hilti Asia Ltd., New Delhi.

49. Dr. H.C. Vivesvaraya, Bangalore.

50. Mr. H.K. Julka, National Council for Cement and Building Materials.

51. Mr. H.M. Parikh, A.E., Gujarat Housing Board.

52. Mr. H.V. Shah, Bhavnagar-364004

53. Mr. Hemand K. Labh, Intercontinental Consultants & Techl Pvt., New Delhi.

54. Mr. I.K. Mishra, National Council for Cement and Building Materials.

55. Mr. I.M. Verma, Superintending Engineer, NDMC.

56. Mr. Interjit Yadav, Simplex Concrete Piles(I) Ltd.

57. Mr. J.K. Prasad, Building Materials & Technology Promotion Council (BMTPC)

58. Mr. J.K. Sharma, General Manager (C), Continental Construction Ltd., New Delhi.

59. Mr. J.P. Kapur, General Manager, Shapooji Pallonji & Co. Ltd

60. Mr. J. Shanmugasundaram, Dy.Director & Head, Structural Eng. Research Centre,Chennai.

61. Mr. Jose Kurian, Chief Engineer,Delhi Transport & Tourism Devp. Corp. Ltd.

62. Mr. K. Balkrishnan, Director-Technology Co-operation Embassy of USA.

63. Dr. K.C. Narang, Executive Director (R&D), Dalmia Cement (Bharat) Ltd.

64. Mr. K.H. Babu, Consultant, National Council for Cement and Building Materials.

65. Mr. K. Jindal, Punj Lloyd Ltd.

66. Mr. K.K. Kangi, Simplex Concrete Piles (I) Ltd.

67. Mr. K.K.V. Prasanth Kumar, AEE, Andhra Pradesh Power Generation Corp. Ltd.

68. Dr. K. Mohan, Additional Director, National Council for Cement & Bilding Materials.

69. Mr. K.P. Bhatnagar, National Council for Cement & Bld. Materials.

70. Mr. K. Paul, Application Engineer, Torsteel Research Foundation in India, New Delhi.

71. Mr. K. Raj Kumar, Consultant, Dhrumataru Consultant & Construction, Hyderabad.

72. Mr. K.V. Rangaswami, Vice President, L&T Ltd.

73. Dr. K.Venkatachalam, Director,Central Soil & Materials Researchy Station, New Delhi

74. Mr. Kamal Jha, National Council for Cement and Building Materials.

75. Mr. Khwaja M. Shahid, Director, M/o Commerce & Industry.

76. Dr. L.H. Rao, General Manager, National Council for Cement & Building Materials.

77. Mr. L.R. Savalia, Gujarat Housing Board.

78. Mr. Lovenish Aggarwal, Design Engineer, Punjab Engg. College.

79. Mr. M.K. Punjabi, National Council for Cement and Bld. Materials.

80. Mr. M.K. Sharma, EE, Central Designs Organisation, CPWD.

81. Mr. M. Krishnamoorthy,Chief Engineer(C),Narmada Hydroelectric Development Corporation Ltd.

82. Mr. M. Lakshmanan, Structural Engineering Research Centre,

83. M.N. Joglekar, Executive Director, HUDCO.

84. Mr. M. Subha Roa, AEE, Andhra Pradesh Power Generation Corp. Ltd.

85. Dr. Madan Sayal, Advisor, National Institute of Urban Affairs Comp.

86. Mr. Mayank Rawal, Director Tech., Asian Laboratories.

87. Mr. Md. Naseeruddin Ahmed, AEE, A.P. Power Generation Corp. Ltd.

88. Dr. N.L. Murthy, Joint Director, National Council for Cement & Bld. Mrtl.

89. Mr. N.N. Bandhu, Manager, Intercontinental Consultants & Tech. Pvt.New Delhi

90. Mr. N.R. Jethwa, Civil Engineer, Narmada Cement Comp. Ltd. Gujarat.

91. Dr. N. Raghvendra, Director National Council for Cement & Bld. Materials.

92. Mr. N.S. Devanand, Technical Assistant`C` I.S.R.O., Thiruvananthapuram.

93. Sh. N. Subramanian, Resident Manager, The India Cements Ltd. New Delhi.

94. Mr. N. Udaya Kumar, Regional Manager, National Housing Bank, New Delhi.

95. Mr. N.V. Vijaya Bhaskar, AEE, A.P. Power Generation Corp. Ltd.

96. Mr. Navneet Kaul, Larsen & Toubro, New Delhi.

97. MR. NEERAJ AGARWAL, Dy. Chief engineer,Survey and Constn. Office of Dy. CE (C) Mumbai.

98. MR. NITIN KAPOOR, Officer-Marketing, The Associated Cement Companies, Ltd.

99. MR. O.P.GARYALI, Consultant, National Council for Cement & Bld. Mrtl.

100. Mr. O.P. JAGETIYA, President, Zuari Cement, Hyderabad.

101. DR. P.C. CHOWDHURY, Consulting Engineer, Torsteel Research Foundation of India, New Delhi.

102. MR. P.K. AGGARWAL, EE(P) (NDZ)-I, Central Public Works Deptt. New Delhi

103. MR. PK HOTA, VICE-CHAIRMAN, DELHI DEVELOPMENT AUTHORITY.

104. MR. PK SHARMA, Shriram Fertilisers & Chemicals, Kota.

105. MR. PK SINHA, Constn. Engineer-Panipat, Hindustan Petroleum Corpn. Ltd., Mumbai.

106. MR. P. SITARAM, AEE, Andhra Pradesh Prad. Power Generation Corp. Ltd.

107. MR. PADMANABHAN, Manager, DCM, Ltd., New Delhi.

108. MR. PANKAJ GUPTA, Sr. Field Officer, Bldg. Materials & Technology Promotion Council (BMTPC).

109. MR. PARAG SAXENA, Manager(C),Narmada Hydroelectric Devp. Corp.Ltd., Bhopal

110. MR. PRAKASH T JOHN, Tachnical Manager, Hilti India Pvt. Ltd. New Delhi

111. MR. PRASANT KUMAR, Asstt. Manager, Intercontinental Consultants & Tech Pvt., New Delhi

112. PROF PREM KRISHNA, University of Roorkee.

113. MR. PROBIR KUMAR DAS, DFID INDIA, NEW DELHI

114. DR(MRS) PROTIMA BOSE, Professor of Civil Engg.Delhi College of Engineering.

115. MR.R. ARUNACHALAM,General Manager-Technical Audit, The India Cements Ltd. Chennai

116. MR. RC WASON, General Manager, National Council for Cement & Bld. Materials

117. MR. R.K. DAS, Simplex Concrete Piles (i) Ltd. New Delhi

118. MR. RK GUPTA, Senior Manager (Proj),Lafarge India Ltd.

119. MR. RK MALHOTRA, World Bank Consultant, New Delhi

120. MR. RN RAIKAR,Principal Coordinator, Maharashtra India Chapter of American Concrete Institute, Mumbai.

121. DR. R. NARAYANAN, Director, Structural Engg. Research Centre, Chennai

122. MR. R PARTHASARATHY, Secy. General, Cement Manufacturers Association,New Delhi

123. ER. R RADHAKRISHNAN, Chief Engineer, PWD, Chennai

124. MR. RAJA RAM, National Council for Cement and Bldg. Mtrls.

125. MR. RAKESH KUMAR BINDAL, Executive, IHBT (CSIR) PALAMPUR.

126. MR. RATTAN LAL, Consultant, National Council for Cement & Bld. Materials.

127. Smt. Bhattacharya, Manager, National Housing Bank. 130.
MR. S.B. SURI, Chief Engineer (HQ) National Water Dev. Authority,New Delhi.

128. MR. SC BASUROY, Chief Engineer,NDMC

129. DR. SC MAITI, Joint Director, National Council for Cement & Bld. Materials.

130. MR. SC RASTOGI, General Manager, National Council For Cement & Bld. Materials.

131. MR. SC SHARMA, General Manager, National Council for Cement & Bld. Materials.

132. DR. SD SHARMA, Scientist,Central Road Research Institute,N.Delhi

133. MR. SJ RAINA, director,National Council for Cement and Bldg. Mtrls.

134. MR. S JAGADEESAN, Jt. Secretary,Min. of Commerce & Industry

135. MR. SK CHAUHAN, Sr. Manager(Civil), National
Hydroelectric Power Corpn. Ltd., Faridabad.

136. MR. SK DOONGAJI, PARTNER, STEWOLS & CO., NAGPUR.

137. MR. SK GHOSH, Consulting Engineer,Torsteel Research Foundation in India,New Delhi

138. MR. SK JAIN, Director, Bureau of India Standards.

139. MR. SK JHA, National Council for Cement and Bldg. Materials.

140. MR. SK MEHTA, National council for Cement and Bldg. Mtrls.

141. MR. SK WALI, Jt. President(OPERATIONS) Lakshmi Cement, New Delhi

142. DR.(MRS.) S LAXMI, Addl. Director, National Council for Cement & Bld. Mtrls.

143. MR. SNM KHAN, General Manager, N.C.C.AND B.M.

144. MR. S.N. HEHROTRA, General Manager, N.C.C. and B.M.

145. DR. S.P. GHOSH, Advisor, N.C.C. AND B.M.

146. MR. SP KRISHNANI, Manager(Tech)Madhya Prad.Financial Corpn. Indore

147. MR. S. SRIDHAR, AEE, Andhra Prad.Power Generation Corp Ltd.

148. MR. SARPAL SINGH,Jt. Dir. N.C.C. AND B.M.

149. MR. SRINIWAS RAO, DFID India, New Delhi.

150. MR. SUBHASH YADAV,Asstt. Manager, DCM LtD. NEW DELHI

151. MR. SUDHIR KULKARNI, Manager, JNIDB, Hyderabad

152. Col. SUDHIR TAMHANE,DGM Technical,jaipur.

153. MR. SUDIPTO MUKERJEE, DFID India, New Delhi.

154. MR. SUNEET kUMAR, Asstt. Manager, The Associated Cement Cos. Ltd. Chandigarh

155. MR. SUNIL SARAF, Simplex Concrete Piles
(i) Ltd.New Delhi.

156. MR. SURESH KUMAR, National Council for Cement and Bldg.Mtrls.

157. MR. SURJIT S. MAAN, New Delhi.

158. MR.TK MANDAL, National Council for Cement and Bldg. Mrtls.

159. MR. T.K. PALIT, Dir. (Tech),N.T.P.C., New Delhi.

160. MR. TMM NAAMBIAR,President-CMA,The Associated Cement Cos Ltd, Mumbai.

161. MR. T.N. GUPTA,Executive Director, BMTPC.

162. MR. T. NARAYANA, AEE, Andhra Pradesh Power Gentn. Corp Ltd.

163. DR. THIRUVENGADUM, Professor,School of Planning & Architecture, N. Delhi

164. MR. U.B. MATHUR, General Manager,DCM Ltd., New Delhi.

165. MR. V. BHAKTHAVATSALA REDDY, AEE, A.P.P.G.Corp Ltd.

166. MR. V. JANANNATHAN, Sr. Vice President, Madras Cements Ltd. Chennai

167. MR. V.K. AGNIHOTRI, Sr. Manager Marketing, The Associated Cement Cos Ltd.

168. MR. V.K. ARORA, Jt. Dir.,National Council for Cement and Bldg. Mtrls.

169. MR. VK PRASAD, Executive Engr.(Civil) HQ Director General Border Roads (D&S Cell)

170. MR. VK SINGH, Dy. Chief Engineer, Office of CPM/RC, Delhi.

171. DR. V.P. CHATTERJEE, National Council for Cement and Bldg. Materials.

172. PROF. V.S. RAMAMURTHY, Secy. Deptt. of Science & Technology

173. MR. V. SURESH, C.M.D., HUDCO

174. MR. V.V. ARORA, National Council for Cement and Bldg. Materials.

175. MR. VERINDER SINGH THIND, Suptdg. Engineer(Civil), Delhi Jal Board

176. MR. YASH KANSAL, Commercial Specialiser Embassy of USA.

177. MR. YUSAF SAMIULLAH, sr. Engineering and Environmental Adv. DFID India,N.Delhi

ANNEXURE-II

THE GAZETTE OF INDIA - EXTRAORDINARY PART II SECTION 3 (ii) MINISTRY OF URBAN DEVELOPMENT AND PC ALLEVIATION (DELHI DIVISION)

NOTIFICATION

New Delhi, the 21st March, 2001

S.O. 248(E)- Whereas, the issue of making suitable provision in the Building Bye-laws to ensure that the buildings that are erected in Delhi provide for the requisite safety feature in respect of natural hazard by way of earthquake has been under the consideration of the Government;

Whereas a public notice was issued and published in the newspapers on 10.2.2001 providing modifications/additions which the Central Government intended in the Building Bye-laws, 1983. Inall 51 objections/suggestions were received from the public and they were examined by a commottee under the convenorship of Chief Planner of Town and Country Planning Organisation;

Whereas after thorough consideration of the report Central Government has decided to make following modifications/additions in the Building Bye-laws, 1983;

Now, therefore, in exercise of the powers conferred by sub-section (2) of Section 11A of Delhi Development Act, 1957, the Central Government hereby makes the following modifications/additions to the Building Bye-laws, 1983 with effect from the date of publication of this notification in the Gazette of India.

MODIFICATIONS:

(i) Clause 18 of Part-III (Structural Safety and Services) of the Building Bye-laws, 1983 will be modified as 18 `The structural design of foundation, masonry, timber, plain concrete, reinforced concrete, pre-stressed concrete and structural steel shall be carried out in accordance with Part-VI StructuralDesign, Section-I-Loads,Section-2-Foundation, Section-3-Wood, Section-4-masonry, Section-5-concrete, Section-6-Steelof national Building Code of India, taking into consideration all relevant Indian Standards prescribed by Bureau of Indian Standards including the Indian Standards given in Annexure-A for earthquake protection of buildings`.

(Note: Whenever an Indian Standard or the National Building Code is referred, the latest provision in the Standard should be adhered to.)

(ii) An additional Sub-Clause is included under Clause 6.2.9 (Documents to accompany application for building permit) of Building Bye-laws as follows:

`

(i) The certificate as indicated at Annexure B and C to be signed by the owner, the architect and the Structural Engineer.`

(No.K-12016/5/79-DDI/A/VA/IB(Pt) S. BANERJEE, Jt. Secy.

Annexure-A

LIST OF INDIAN STANDARDS/GUIDELINES FOR HAZARD SAFETY

For earthquake Protection

1. IS: 1893-1984 `Criteria for Earthquake Resistant Design of Structures (Fourth Revision)` June 1986.

2. IS: 13920-1993 `Ductile detailing of Reinforced Concrete Structures subject to Seismic Forces - Code of Practice` November 1993.

3. IS: 13828-1993 `Earthquake Resistant Design and Construction of Buildings - Code of Practice (Second Revision)` October 1993.

4. IS: 13828-1993 `Improving Earthquake Resistance of Low Strength Masonry Buildings - Guidelines` August 1993.

5. IS: 13827-1993 `Improving Earthquake Resistance of Earthen Buildings - Guidelines` October 1993.

6. IS: 13935-1993 `Repair and Seismic Strengthening of Buildings-Guidelines` November 1993.

ANNEXURE-B (under Clause 6.2.9)

CERTIFICATE: The following certificate is to be submitted along with the Building Drawing while submitting the plans for obtaining Building Premission:

1. Certified that the building plans submitted for approval satisfy the safety requirements as stipulated under Clause 18 of Building Bye-laws, 1983 and the information given therein is factually correct to the best of our knowledge and understanding.

2. It is also certified that the structural design including safety from natural hazards based on soil conditions has been duly incorporated in the design of the building and these provisions shall be adhered to during the construction.

Signature of the Owner Signature of Sinature of Structual Owner with date Architect with Engineer with date date (As defined in NBC of India)

Name in Block letters Name in Block letters Name in Block Address Address letters/Address

ANNEXURE- C(under Clause 7.5.2)

Certificate: The following certificate is to be submitted at the time of obtaining Form `D` or at the time of obtaining Completion Certificate, whichever is obtained earlier:

1. Certificate that the building (s) has been constructed according to the Sanctioned Plan and structural design (one set of structural drawings as executed is enclosed) which incorporates the provisions of structural safety as specified in relevant prevailing IS Codes/Standards/Guidelines.

2. It is also certified that construction has been done under our supervision and guidance and adheres to the drawing submitted and the records of supervision have been maintained by us.

3. Any subsequent change from the completion drawings will be the responsibility of the owner(s)

Signature of the Signature of the Signature of Structural Owner with date Architect with Engineer with date date (As defined in NBC of India)

Name in Block letter Name in Block letters Name in Block Address Address letters/Address